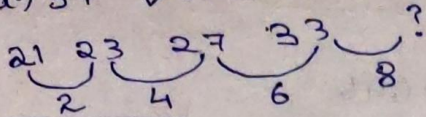


# NUMBER AND LETTER SERIES

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1) 21, 23, 27, 33, "?" find "?"

a) 37 b) 41 c) 43 d) 49 e) 54

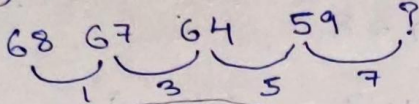


"MULTIPLES OF 2 IS SERIES"  
ADDING OF THAT SERIES"

$33 + 8 = 41$

2) 68, 67, 64, 59, "?" find "?"

a) 52 b) 53 c) 54 d) 56 e) 58



"SUBTRACTING OF 1, 3, 5, 7 'PATTERN'  
ODD NUMBERS

$59 - 7 = 52$

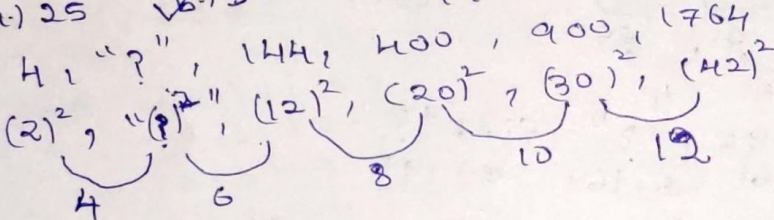
3) 0, 2, 6, 8, 16, 30, 54, "?" find "?"

a) 74 b) 88 c) 100 d) 110 e) 122

$0 + 2 = 2$   
 $0 + 2 + 6 = 8$   
 $2 + 8 + 6 = 16$   
 $6 + 8 + 16 = 30$   
 $8 + 16 + 30 = 54$   
 $16 + 30 + 54 = 100$

4) 4, "?", 144, 400, 900, 1764

a) 25 b) 36 c) 49 d) 100 e) 102



$2 + 4 = 6$  (or)  $12 - 6 = 6$

$50 = (6)^2 = 36$

5) 2, 10, 30, 68, "?" find "?"

a) 125 b) 130 c) 128 d) 135 e) 104

2, 10, 30, 68, "?"

$n^2 + n$  is general formula

$(1)^3 + 1 = 2$

$(2)^3 + 2 = 10$

$(3)^3 + 3 = 30$

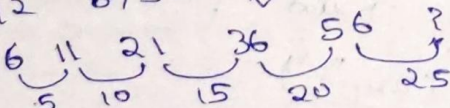
$(4)^3 + 4 = 68$

$(5)^3 + 5 = 125 + 5 = 130$

there fore

6) 6, 11, 21, 36, 56, "?" find "?"

a) 42 b) 51 c) 81 d) 91 e) 98



$56 + 25 = 81$



7) 8, 14, 26, 44, 68, "?" Find "?"  
 a) 71 b) 78 c) 84 d) 98 e) 102

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8 14 26 44 68 ?  
 6 12 18 24 30  
 $(68 + 30 = 98)$

8) 3, 9, 6, 36, 30, "?" Find "?"  
 a) 900 b) 800 c) 950 d) 400 e) 646

3 9 6 36 30 ?  
 $(3)^2$   $(6)^2$   $(30)^2$   
 $(30)^2 = 30 \times 30 = 900$

9) 36, 34, 30, 28, 24, "?" Find "?"  
 a) 23 b) 26 c) 20 d) 22 e) 28

$24 - 2 = 22$

36 34 30 28 24 ?  
 2 4 2 4 2  
 10) 100, 97, 90, 76, 55, "?" Find "?"  
 a) 28 b) 27 c) 26 d) 25 e) 32

~~55-28=27~~  
 Subtract  $55 - 28 = 27$

97 90 76 55 ?  
 7 14 21 28  
 11) 1, 6, 15, "?" 45, 66, 91 Find "?"  
 a) 25 b) 26 c) 27 d) 28 e) 13

$15 + 13 = 28$

1 6 15 ? 45 66 91  
 5 9 13 17 21 25

12) 5, 11, 23, 47, 95, "?" Find "?"  
 a) 190 b) 191 c) 161 d) 169 e) 199

$95 + 96 = 191$

5 11 23 47 95 ?  
 6 12 24 48 96

13) 7, 12, 19, 28, 39, "?" Find "?"  
 a) 52 b) 50 c) 51 d) 48 e) 66

$39 + 13 = 52$

7 12 19 28 39 ?  
 5 7 9 11 13

14) 2, 6, 12, "?" 30  
 a) 18 b) 24 c) 20 d) 26 e) 37

Add multiples of 2 with previous value

2 6 12 ? 30  
 4 6 8 10

$12 + 8 = 20$

15) 24, 6, 18, 9, 36, 9, 24, "?" Find "?"  
 a) 24 b) 12 c) 8 d) 6 e) 26

$(24, 6)$   
 $24/6 = 4$

$(18, 9)$   
 $18/9 = 2$

$(36, 9)$   
 $36/9 = 4$

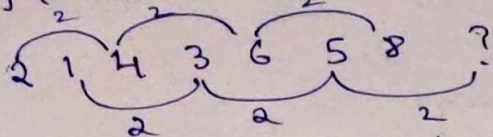
$(24, 9)$

$24/2 = 12$



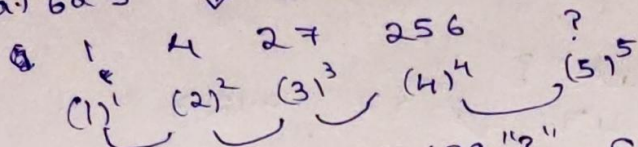
16) 2, 1, 4, 3, 6, 5, 8, "?" . Find "?"  
 a.) 9 b.) 10 c.) 7 d.) 8 e.) 12

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$5 + 2 = 7$   
 Belongs to 2nd series

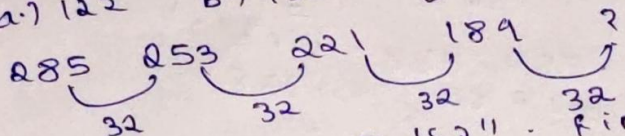
17) 1, 4, 27, 256, "?" . Find "?" d.) 1225 e.) 1339  
 a.) 625 b.) 3125 c.) 3625



$(n)^n$  is general formula

$(5)^5 = 3125$

18) 285, 253, 221, 189, "?" . Find "?"  
 a.) 122 b.) 153 c.) 157 d.) 151 e.) 159



$189 - 32 = 157$   
 Subtract 32.

19) 8, 3, 11, 14, 25, "?" . Find "?"  
 a.) 50 b.) 39 c.) 29 d.) 11 e.) 42

$8 + 3 = 11$   
 $11 + 3 = 14$   
 $14 + 11 = 25$

$25 + 14 = 39$

20) 3, 8, 27, 112, "?" , 3396 . Find "?"  
 a.) 565 b.) 452 c.) 560 d.) 1530 e.) 1449

$3 \times 1 + 1 = 3$   
 $3 \times 2 + 2 = 8$   
 $8 \times 3 + 3 = 27$   
 $27 \times 4 + 4 = 112$   
 $112 \times 5 + 5 = 565$

21) 2, 9, 28, 65, "?" . Find "?"  
 a.) 121 b.) 195 c.) 126 d.) 103 e.) 97

General formula is  $(n^3 + 1)$

$n = 1 \rightarrow 1 + 1 = 2$   
 $n = 2 \rightarrow 8 + 1 = 9$   
 $n = 3 \rightarrow 27 + 1 = 28$   
 $n = 4 \rightarrow 64 + 1 = 65$

$n = 5 \rightarrow 125 + 1 = 126$

22) 31, 13, 45, 54, "?" , 63 . Find "?"  
 a.) 36 b.) 54 c.) 61 d.) 58 e.) 49

31  $\rightarrow$  change to 13  
 45  $\rightarrow$  change to 54  
 "?"  $\rightarrow$  change to 63  $\rightarrow$  change to 36



23) 8, 27, 64, "?". Find "?"  
 a) 216 b) 128 c) 164 d) 125 e) 123

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(n)<sup>3</sup> is general formula

(2)<sup>3</sup> = 8

(4)<sup>3</sup> = 64

(5)<sup>3</sup> = 125

(3)<sup>3</sup> = 27

24) 6, 9, 12, 15, 15, 18, "?". Find "?"

6, 9, 12, 15 / 15, 18, 21

multiples of 3.

3x7=21

25) 107, 97, 82, 62, "?". Find "?"

a) 52 b) 42 c) 47 d) 37 e) 23

107 97 82 62 ?  
 10 15 20 25

Subtract 15

62 - 25 = 37

26) 30, 68, 130, 222, "?". Find "?"

520, 738 - Find "?"

General formula is n<sup>3</sup> + n

n=3 → 3<sup>3</sup> + 3 = 30

n=4 → 4<sup>3</sup> + 4 = 68

n=5 → 5<sup>3</sup> + 5 = 130

n=6 → 6<sup>3</sup> + 6 = 222

n=7 → 7<sup>3</sup> + 7 = 343 + 7 = 350

27) 2, 2, 29, 38, 47, "?". Find "?"

158 e) 160

29 + 2 = 31

38 + 2 = 40

47 + 2 = 49

56

28) 17, 43, 81, 131, "?". Find "?"

a) 375 b) 468 c) 300 d) 193 e) 234

17 43 81 131 ?  
 26 38 50 62  
 12 12 12

131 + 62 = 193

29) 3.5, 7, 10.5, 14, "?". Find "?"

a) 15.5 b) 16.5 c) 18.5 d) 17.5 e) 18.5

3.5 7 10.5 14 ?  
 3.5 3.5 3.5 3.5

14 + 3.5 = 17.5

30) 3, 128, 6, 64, 9, "?", 12, 16, 15, 8. Find "?"

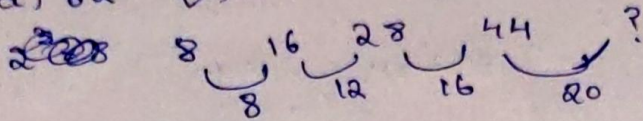
3 128 6 64 9 ? 12 16 15 8

2<sup>3</sup> = 8, 2<sup>4</sup> = 16, 2<sup>5</sup> = 32, 2<sup>6</sup> = 64, 2<sup>7</sup> = 128.



31.) 8, 16, 28, 44, "?". Find "?"  
 a.) 62    ~~b.) 64~~    c.) 66    d.) 68    e.) 68

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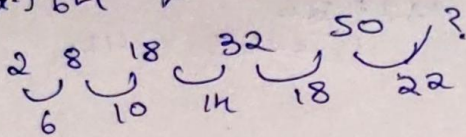


Add multiples of 4.

$$44 + 20 = 64$$

$$44 + 20 = 64$$

32.) 2, 8, 18, 32, 50, "?". Find "?"  
 a.) 64    ~~b.) 72~~    c.) 70    d.) 68    e.) 88

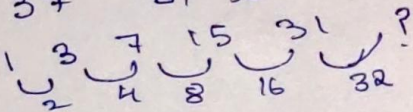


add 4.

$$50 + 22 = 72$$

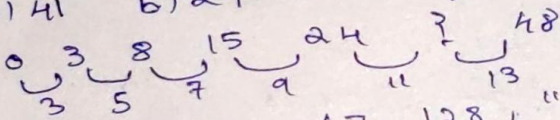
$$50 + 22 = 72$$

33.) 1, 3, 7, 15, 31, "?". Find "?"  
 a.) 37    b.) 36    c.) 73    ~~d.) 63~~    e.) 56



$$31 + 32 = 63$$

34.) 0, 3, 8, 15, 24, "?", 48. Find "?"  
 a.) 41    b.) 29    c.) 39    ~~d.) 35~~    e.) 39



$$24 + 11 = 35$$

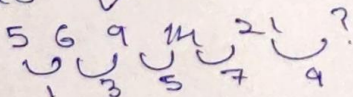
35.) 4, 11, 30, 67, 128, "?". Find "?"  
 a.) 219    b.) 228    c.) 231    d.) 237    e.) 260

General formula =  $n^3 + 3$

$$\begin{aligned} n=1 &\rightarrow 1^3 + 3 = 4 \\ n=2 &\rightarrow 2^3 + 3 = 11 \\ n=3 &\rightarrow 3^3 + 3 = 30 \\ n=4 &\rightarrow 4^3 + 3 = 67 \\ n=5 &\rightarrow 5^3 + 3 = 128 \end{aligned}$$

$$n=6 \rightarrow 6^3 + 3 = 219$$

36.) 5, 6, 9, 14, 21, "?". Find "?"  
 a.) 28    ~~b.) 30~~    c.) 31    d.) 29    e.) 32



$$21 + 9 = 30$$

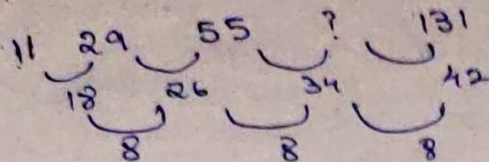
37.) 5, 16, 51, 158, "?". Find "?"  
 a.) 1452    b.) 483    ~~c.) 481~~    d.) 1454    e.) 987

$$\begin{aligned} 5 \times 3 + 1 &= 16 \\ 16 \times 3 + 3 &= 51 \\ 51 \times 3 + 5 &= 158 \\ 158 \times 3 + 7 &= 481 \end{aligned}$$



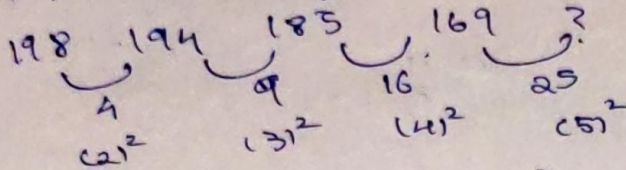
38) 11, 29, 55, "?", 131 - Find "?"  
 a) 110 b) 81 ✓ c) 89 d) 78 e) 96

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$55 + 34 = 89$

39) 198, 194, 185, 169, "?" - Find "?"  
 a) 92 b) 136 ✓ c) 144 d) 112 e) 110



$169 - 25 = 144$

40) 0, 1, 1, 2, 3, 5, 8, 13, 21, ?  
 ✓ a) 34 b) 35 c) 33 d) 36 e) 38

$13 + 21 = 34$

41) 17, 36, 74, 150, "?", 606 - Find "?"  
 a) 250 b) 303 c) 300 ✓ d) 302 e) 303

$17 \times 2 + 2 = 36$

$36 \times 2 + 2 = 74$

$74 \times 2 + 2 = 150$

$150 \times 2 + 2 = 302 \rightarrow \text{Answer}$

$302 \times 2 + 2 = 606$

42) Find the missing number in the series 4, 18, ..., 100, 180, 294.  
 a) 32 b) 36 ✓ c) 48 d) 40 e) 52

General Formula =  $n^3 - n^2$

$2^3 - 2^2 = 8 - 4 = 4$

$3^3 - 3^2 = 27 - 9 = 18$

$4^3 - 4^2 = 64 - 16 = 48 \rightarrow \text{Answer}$

$5^3 - 5^2 = 125 - 25 = 100$

$6^3 - 6^2 = 216 - 36 = 180$

$7^3 - 7^2 = 343 - 49 = 294$

$8^3 - 8^2 = 512 - 64 = 448$